

CRYSTAL RADIOS AK (/)

Loose Coupler Set

In spring of 2016, I decided to build a crystal set with my friends. After searching information on the net, I found a series of introductory videos shown in MICROWAVE1 channel on YouTube very interesting. So, I designed a set based on the loose coupler in the video and added antenna tuning and the detector circuit.

The sliding notch of the antenna coil was not well-made or smooth, but once its position is set, it works fine. The move of secondary coil is also not satisfactory, but I have no complain. You need to reach the slider and the moving coil behind the front panel, so it is a bit annoying. With S4, *DP3T, you can make connection of the coil and capacitor serial or parallel. Rotary switches, S5 and S6 are *SP6T to select taps. Capacitance of the variable capacitors can be added by S2 and S7.

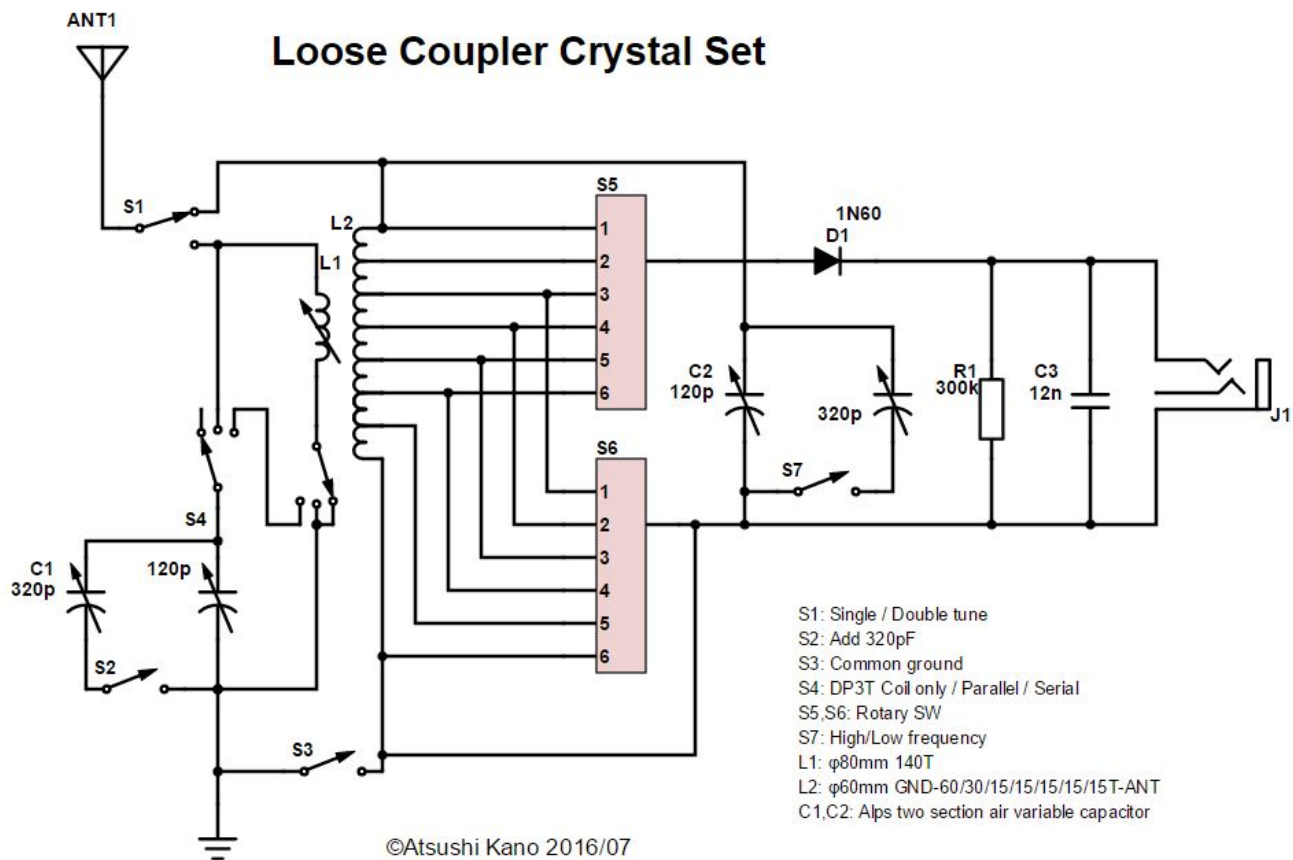
L1 and L2 use 0.5mm polyurethan coated wire and are wound on PVC pipes. R1 should be determined according to the phone(s) you use, or you can make it variable.

Finding the best settings is not so easy but very interesting. You need to adjust L1, L2, C1, and C2 simultaneously, little by little. With an 18 m long wire antenna around my house and a shallow ground earth, maximum voltage at the phone was 50-80 mV when tuned to local stations (10 kW / 10 km). It cannot pick up stronger but distant stations, such as the one with 300 kW at 200 km away, even at night. I may need longer and higher antenna for that.

This is not a super high performance set. It has OK sensitivity and not so great selectivity (no QRM though), but it outputs decent level of sound and certainly is fun to play with. Please note that all the evaluations are very subjective as I have no way to compare other ones.

July 15, 2016

*DP3T: Double pole 3 throw, SP6T: Single pole 6 throw





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